

# Chapter 8

## Administration and Implementation of the Monitoring Program

In this chapter, we describe the composition of the Board of Directors (BOD) and Technical Committee (TC); the decisionmaking process of the Network; the staffing plan; how Network monitoring operations will be integrated with other park operations; anticipated state and federal partnerships; and the periodic review process for the program.

### 8.1 SWAN Board of Directors and Technical Committee, and Their Roles in Developing and Implementing the Monitoring Program

Membership and operation of the SWAN Board of Directors is guided by a charter ([http://www.nature.nps.gov/im/units/swan/Libraries/Reports/ProgramDocuments/SWAN\\_2002\\_Charter.pdf](http://www.nature.nps.gov/im/units/swan/Libraries/Reports/ProgramDocuments/SWAN_2002_Charter.pdf)). The BOD for SWAN includes the superintendent from each park, the Alaska Region I&M coordinator, the Alaska Region science advisor, and the Network coordinator (Table 8-1). One of the superintendents serves as the chair for the BOD, and this position rotates among the superintendents every 2–3 yr. The three superintendents and regional I&M coordinator are the voting members of the BOD, and the other members serve as advisors to the superintendents.

*Table 8-1 Composition of the SWAN Board of Directors, 2006.*

Title	Current Member	Voting	Advisor
Superintendent, KATM	Ralph Moore	x	
Superintendent, KEFJ	Jeff Mow	x	
Superintendent, LACL	Joel Hard, Chair	x	
Regional I&M Coordinator	Sara Wesser	x	
Regional Science Advisor	Robert Winfree		x
Network Coordinator	Alan Bennett		x

The BOD ensures that the monitoring program is built upon a collaborative vision for the Network and considers the mandates, needs, interests, and goals of all park units. The BOD works to maintain the integrity of Vital Signs Monitoring and Water Resources funds and staff and assures that monitoring resources are not diverted or reassigned to other programs. Additionally, the BOD ensures that park staff selected to participate in SWAN are fully committed to vital signs monitoring and establishes personnel appraisal systems that reward Network cooperation. Finally, the BOD responds to what we have learned through long-term monitoring and acts on recommendations from the TC to institute new management actions or modify existing management actions where necessary to protect or restore park ecosystems.

The SWAN TC consists of the chiefs of resource management from KATM, KEFJ, and LACL, the Network coordinator (chair), the Network data manager, the regional ecologist, and the USGS-BRD liaison to NPS for long-term monitoring (Table 8-2). All members of the TC except the USGS-BRD representative are “voting” members. As with the BOD, membership and operation of the TC is guided by a charter ([http://www.nature.nps.gov/im/units/swan/Libraries/Reports/ProgramDocuments/SWAN\\_2002\\_TC-Charter.pdf](http://www.nature.nps.gov/im/units/swan/Libraries/Reports/ProgramDocuments/SWAN_2002_TC-Charter.pdf)).

*Table 8-2 Composition of the SWAN Technical Committee, 2005.*

Title	Name	Park
SWAN Coordinator, Chair	Alan Bennett	SWAN
SWAN Data Manager	Dorothy Mortenson	SWAN
Chief Natural Resources	Shelley Hall	KEFJ
Chief Natural Resources	Troy Hamon	KATM
Chief Natural Resources	Colleen Matt	LACL
Regional Ecologist	Page Spencer	ARO
Biologist, USGS	Karen Oakley	USGS

The TC is a working group, decisionmaking, and technical oversight body. Key roles are to provide guidance and support needed to sustain on-the-ground monitoring efforts and to assist the Network Coordinator in the preparation of the Annual Administrative Report and Work Plan. The TC may make frequent use of work groups to evaluate options and provide alternatives and may often rely on work group reports as a basis for action. All work groups will be chaired by a member of the TC and work group members will be approved by the TC.

## 8.2 Staffing Plan

SWAN parks are characterized by relatively small natural resources staffs (3–4 people per park). In some parks there is good representation by fisheries and wildlife biologists but low representation in the disciplines of physical science, marine science, and vegetation ecology. A challenge for SWAN is to secure the range of technical specialists needed to implement the monitoring program without overcommitting the Network budget to staff salaries. We plan to meet this challenge by strategic sharing of positions with the Network parks, Alaska Regional Office (ARO), and outside agency partners (Table 8-3).

SWAN is currently centrally based in Anchorage at the NPS-ARO and administratively supported by LACL, also headquartered in Anchorage with field stations in Homer and Port Alsworth. Headquarter and field station locations for other network parks units are described in Chapter 1. In 2005, the Technical Committee and Board of Directors endorsed the concept of centrally basing the network in Homer. Advantages cited for this location include the opportunity to collocate with park staff, partnership opportunities with other agencies and NGOs, logistical proximity to parks, and education and outreach potential. Homer is a public “gateway” to SWAN parks and provides a unique opportunity for place-based scientists to become information brokers and act as bridge between science and community-based stewardship of national parks. Elements of the SWAN staffing plan are the inclusion of network staff who assume multiple roles, and a reliance on substantial involvement by park-based staff in organizing and conducting field monitoring. This design is based upon the need to:

- Minimize staff costs and conserve funding needed for field operations;
- Capitalize on efficiency and safety associated with local knowledge of park staff;
- Ensure programmatic integration of monitoring with other park operations, such as resource protection and interpretation; and
- Fully utilize the breadth of both Network and park staff expertise.

Staff organization of SWAN is built around four program areas: **data collection (monitoring), design and analysis, data management, and reporting**. The core of the staffing plan is an interdisciplinary team of six project leaders who are centrally based in Anchorage (Figure 8-1). We believe that the most effective approach to understanding complex ecosystems and how they are changing is to use an interdisciplinary team that pools knowledge and expertise and works together. For example, marine ecologists need to talk to atmospheric scientists and wildlife biologists need to talk with landscape ecologists. Project leaders provide oversight, direct on-the-ground monitoring, and provide a critical link between data collection, synthesis, interpretation, and reporting. In many cases, project leaders may rely on existing park staff

**Table 8-3 Roles of Network and park staff in FY 2006–2009 (\* New position not existing in FY 2005).**

<b>POSITION GRADE &amp; STATUS</b>	<b>PRIMARY DUTIES</b>	<b>DUTY STATION</b>	<b>TOTAL PAY PERIODS TO NETWORK/YR</b>
Network Coordinator GS-12 Permanent	Coordinates and administers all aspects of the monitoring program. Cochairs the Technical Committee to formulate direction and administration of the program. Supervises project leaders and data manager, serves as advisor to the Board of Directors in making programmatic decisions and maintaining accountability of program. Also serves as a project leader for monitoring or research.	Anchorage or Homer	Included under project leader salaries
Assistant Network Coordinator GS-12 Permanent	Works under direction of the lead coordinator to administer all phases of the monitoring program. Responsible for details of day-to-day monitoring projects and integration of results across disciplines. Primary contact with park staffs. Serves as a project lead in field of expertise.	Anchorage or Homer	Included under project leader salaries
Data Manager GS-11 Permanent	Is the primary person responsible for all aspects of data management for the Network. This includes establishing the flow of data from collection to reporting and archiving. Designs the architecture for World Wide Web dissemination of program information. Works with Principal Investigators to design appropriate databases for data collection and for integration of data.	Anchorage or Homer	26
*Assistant Data Manager/GIS GS-7/9 Permanent	Serves as the assistant to the Data Manager. Undertakes detailed database and GIS design work and programming as needed. Handles technical aspects related to delivery/communication of monitoring program information via the World Wide Web. Works with Principal Investigators to ensure that data are entered and analyzed appropriately.	Anchorage or Homer	26
Biometrician/ Wildlife Biologist GS-12 Permanent	Responsible for all aspects of sampling design and data analysis associated with monitoring and research, development, and application of models, and serves as project leader for terrestrial wildlife monitoring and research. May also serve as Network Coordinator, member, and cochair of the Technical Committee.	Anchorage or Homer	26
*Marine Nearshore Ecologist GS-12 Permanent	Project leader for marine nearshore vital signs monitoring and research; liaison to the Gulf of Alaska Ecosystem Monitoring Program and Alaska Ocean Observing System. May also serve as Network Coordinator, member, and cochair of the Technical Committee.	Anchorage or Homer	26
*Landscape Ecologist GS-12 Permanent	Serves as a project leader for monitoring land cover change and landscape processes using remote sensing analyses. Maintains and updates inventory of remote sensing-related information and database. Interprets and integrates results of other vital signs in context of ecosystem processes. May also serve as Network Coordinator, member, and cochair of the Technical Committee.	Anchorage or Homer	26
Botanist GS-11 Term (current) Proposed *GS-11/12 Permanent	Serves as project leader for vegetation monitoring in the Network. Is responsible for design, implementation, and reporting of vegetation monitoring. Oversees synthesis of vegetation and climate-related data. May also serve as Network Coordinator, member, and cochair of the Technical Committee.	Anchorage or Homer	26

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Table 8-3 (continued)

POSITION GRADE & STATUS	PRIMARY DUTIES	DUTY STATION	TOTAL PAY PERIODS TO NETWORK/YR
Freshwater Ecologist GS-11 Term (current) Proposed *GS-11/12 Permanent	Serves as project leader for freshwater monitoring in the Network. Responsible for developing and directing operational monitoring for water chemistry, surface hydrology, and resident lake fish. May also serve as Network Coordinator, member, and cochair of the Technical Committee.	Anchorage or Homer	26
*Biological Technicians (2 positions) GS-7 Term	Supervised by a project leader and serve as the park-based contact regarding any logistics and permitting for monitoring work in a given park. Expedite all biological monitoring fieldwork in their parks, assist with data collection, entry, summary, analysis, and reporting.	Park Field Offices	26 26
*Physical Science Technician GS-7 Term	Supervised by a project leader and serves as the park-based contact regarding any logistics and permitting for monitoring work in a given park. Is responsible for implementing climate and other monitoring protocols, including collection, collation, and summarization of data.	Park Field Offices	26
Clerical Assistant GS-7 Term (part-time)	Provides assistance to the Network by helping to complete and file paperwork (travel, supervision), assisting in preparing annual reports, entering budget information on financial systems, formatting correspondence, and arranging logistics for meetings. Also enters project information on tracking database to maintain program accountability.	Anchorage or Homer	13
<b><i>Alaska Regional Office Staff Working on Network Vital Signs Monitoring but Paid from ARO Funds</i></b>			
Physical Scientist GS-12 Permanent	Serves as project leader for climatic and glacier monitoring in the Network. Provides general oversight for all physical resource monitoring and is responsible for designing, conducting, and reporting of monitoring data on glaciers and climate/weather data.	Anchorage	2–4
<b><i>Kenai Fjords Staff Working on Network Vital Signs Monitoring but Paid from Park-Based Funds</i></b>			
Ecologist GS-11 Permanent	Is park lead for marine, terrestrial, and aquatic vital signs monitoring. In conjunction with SWAN project leader(s) is responsible for scheduling and organizing field sampling, collecting and summarizing data. May assist in other monitoring and may work in other parks.	Seward	3–6
Education/ Outreach Specialist GS-11 Permanent	Directs education and outreach program for the Network. Coordinates interpretation and education programs that transfer information about Network resources to park-based interpreters and the public at large, through outreach to schools, Web site development, and other means.	Seward	3–6
<b><i>Katmai Staff Working on Network Vital Signs Monitoring but Paid from Park-Based Funds</i></b>			
Wildlife Biologist (mammals and birds) GS-11 Permanent	Is park lead for brown bear, wolf, wolverine, moose, and caribou monitoring. In conjunction with SWAN project leader(s) is responsible for scheduling and organizing field sampling, collecting and summarizing data. May assist in other monitoring and may work in other parks.	King Salmon	2–4

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Table 8-3 (continued)

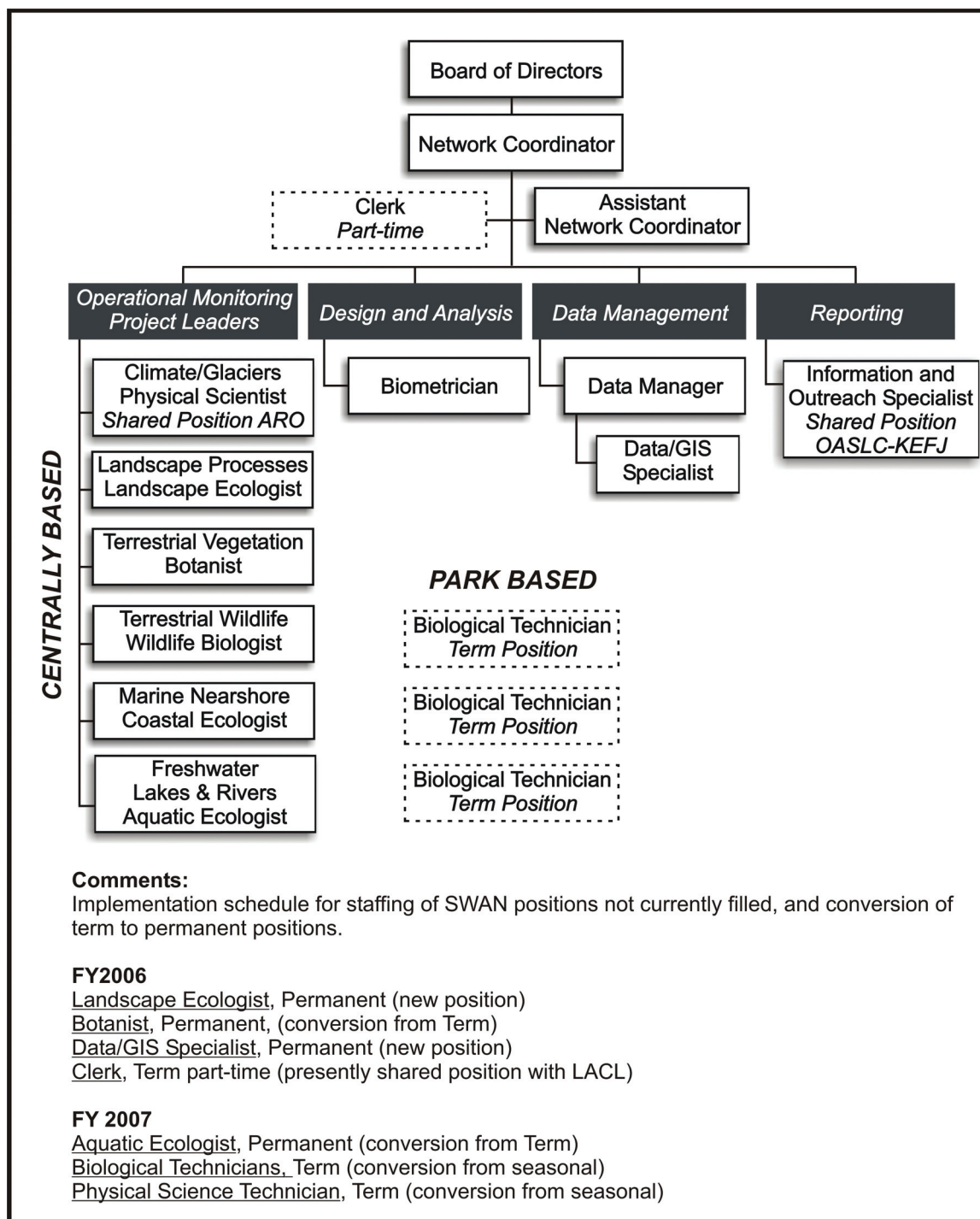
POSITION GRADE & STATUS	PRIMARY DUTIES	DUTY STATION	TOTAL PAY PERIODS TO NETWORK/YR
Fisheries Biologist) GS- 11 Permanent	Is park lead for water quality, surface hydrology, salmon, and resident lake fish monitoring. In conjunction with SWAN project leader(s) is responsible for scheduling and organizing field sampling, collecting and summarizing data. May assist in other monitoring and may work in other parks.	King Salmon	3–6
Coastal Biologist GS-11 Permanent	Serves as park leader for marine nearshore monitoring and works with SWAN/Gulf Ecosystem Monitoring partners. In conjunction with SWAN projects leader(s) is responsible for scheduling and organizing field sampling, collecting and summarizing data. May assist in other monitoring and may work in other parks.	King Salmon	2–4
<b>Lake Clark Staff Working on Network Vital Signs Monitoring but Paid from Park-Based Funds</b>			
Fisheries Biologist) GS- 11 Permanent	Is park lead for water quality, surface hydrology, salmon, and resident lake fish monitoring. In conjunction with SWAN projects leader(s) is responsible for scheduling and organizing field sampling, collecting and summarizing data. May assist in other monitoring and may work in other parks.	Port Alsworth	3–6
Wildlife Biologist (mammals and birds) GS-11 Permanent	Is park lead for brown bear, wolf, wolverine, moose, and caribou monitoring. In conjunction with SWAN projects leader(s) is responsible for scheduling and organizing field sampling, collecting and summarizing data. May assist in other monitoring and may work in other parks.	Port Alsworth	2–4
Biological Technician GS-7 Permanent	Supports park vital signs monitoring, including field sampling and summarization of data. May assist in other monitoring and may work in other parks.	Port Alsworth	2–4

or other partners to conduct field sampling. Analysis and data management will be directed by senior, centrally based Network staff. Information and outreach will be directed by park or Network-based staff who are shared among the programs. Field sampling will be conducted by teams consisting of park-based Network technicians, park staff, and project leaders. Creating monitoring teams from centrally based network scientists and park-based biologists and managers plays a crucial role in integrating science and management and institutionalizing the monitoring program within park operations.

The make-up and roles of project leaders and other Network staff have been given careful attention and aligns with the breath of physical and biological vital signs that will be monitored (Table 8-3). It is critical that we have top-quality active scientists leading SWAN, but we do not want to compromise the very research experience and knowledge that make them well-suited for a leadership role. In recognition of this, coordination of SWAN will be based upon a dual leadership approach whereby two project leaders will serve as senior and assistant Network coordinators. By splitting responsibilities between two individuals, each individual will be a contributor to program administration without sacrificing the role as practitioners in monitoring and research. Network coordinators have a crucial role of being *translators*; i.e., senior scientists who stand up when a meeting is descending into a hopeless quagmire and pull everyone back to the broad, important questions that really matter, using words that everyone can understand.

Under a dual leadership approach, the senior and assistant coordinators will have both shared and independent responsibilities. For example, both coordinators will serve as co-chairs on the TC and staff to the BOD. The senior coordinator will supervise all project leaders (including the assistant coordinator) and represent SWAN as point-of-contact for the regional and national I&M programs. Specific shared and





**Figure 8-1** Staff organization chart for SWAN once monitoring is implemented in 2007. Positions in dashed boxes are Term or Part-time, whereas positions in solid boxes are permanent.

independent roles will be negotiated among the Network coordinators and approved by the BOD. A dual leadership approach will minimize program disruption that can occur with staff turnover.

### 8.3 Integration of Program with Park Operations

The “network concept” is based on the principle of park and network staff joining together to plan, coordinate activities, share resources, leverage additional resources, and implement operational monitoring (S. Fancy). Programmatic integration of monitoring with park operations such as protection, interpretation, maintenance, and stewardship is crucial. In SWAN, integration will be built around four principles—lead,

### **inform, listen, and involve.**

- Network vital signs monitoring staff must professionally **lead** the program in order to inspire confidence and build strong internal support and respect. This is extremely important during initial years of the program and will be achieved by (i) hiring qualified professionals who possess background and understanding of long-term monitoring and the needs of the National Park System; and (ii) involving park staff in the recruitment and orientation of Network personnel.
- Senior Network staff will regularly **inform** all park staff of *who we are and what we do*. To promote recognition, Network staff will (i) attend and participate in spring all-employees/seasonal orientation meetings; (ii) participate in semiannual park program managers' meetings; (iii) work through the Ocean Alaska Science and Learning Center (OASLC) to widely distribute information and education products to park interpreters and staff.
- Vital Signs Monitoring staff must **listen** to park staff concerns, such as insight into human-related impacts affecting park resources, natural events, and recommendations concerning how monitoring is conducted. Senior Network staff will conduct periodic informal park visits to (i) keep in touch with the realities of field personnel and life as an NPS employee in rural Alaska; and (ii) solicit feedback on current and developing issues involving park monitoring, management, and research.
- Finally, a goal of this program is to **involve** park biologists, interpreters, rangers, pilots, maintenance, and other staff in the collection of monitoring data, as educators, or in a support capacity for carrying out most monitoring operations. Involvement will also be achieved by basing at least one Network staff member in each park year-round to serve as the onsite expeditor for field monitoring. Decisions on both annual and day-to-day program operations are reached jointly by the onsite expeditor and senior Network staff.

## **8.4 Anticipated Partnerships**

Partnerships have been pivotal in planning of SWAN's monitoring program and will continue to be so during implementation (Table 8-4). Example partnerships addressing multiple vital signs include the following:

- Gulf of Alaska Ecosystem Monitoring Program (GEM) of the *Exxon Valdez* Oil Spill Trustee Council. The GEM is a core monitoring program conducted by a consortium of resource agencies and research entities with the goals of detecting environmental change over time and expanding understanding of the Gulf of Alaska ecosystems. Nearshore coastal monitoring in SWAN will be fully integrated with the GEM program.
- Cook Inlet Region Citizens Advisory Council (CIRCAC) was created by the Oil Pollution Act of 1990 and has a federal mandate to monitor for environmental impacts of oil-related activities in Cook Inlet, including coastal areas of Lake Clark and Katmai National Parks. SWAN may partner with CIRCAC for monitoring of bioaccumulated contaminants in coastal waters.
- The Kachemak Bay Estuarine Research Reserve (KBERR) is managed by NOAA and the ADNR. A primary objective of KBERR is to understand changes in the bay and surrounding waters by linking monitoring with process-oriented experiments. SWAN will partner with KBERR on fixed stations sensors to measure seawater temperature, pH, salinity, and dissolved oxygen in transects crossing Cook Inlet and Shelikof Strait.
- The Alaska Maritime, Kenai, Kodiak, Becharof, and Alaska Peninsula National Wildlife Refuges are managed by the USFWS and consist of offshore islands and interior lands that directly adjoin SWAN parks. Long-term data are collected annually by these refuges for selected species and ecosystems under the trust of the USFWS. SWAN will partner with these refuges in monitoring of birds, fish, mammals, and air quality.
- The ADF&G is responsible for the protection and management of fish, game, and aquatic plant resources in Alaska consistent with the sustained yield principle. SWAN will partner with several ADF&G divisions in monitoring large mammals, salmon, and marine resources.

- The ADNR is responsible for protecting water quality, fish and wildlife habitat, and other forest values through appropriate forest practices and administration of the Forest Resources and Practices Act. ADNR provides assistance to various federal resource program partners (including SWAN) for forest insect research, periodic ground surveys, and annual aerial monitoring.
- The USFS partners with ADNR to produce the Annual Forest Health Protection Reports that will be used by SWAN staff to monitor forest insect and disease outbreaks. In addition, SWAN staff are currently engaged in discussions regarding the establishment of a Memorandum of Understanding (MOU) with the USFS, Pacific Northwest Experiment Station, for cooperation in forest inventory and monitoring activities on NPS lands.
- USGS-BRD Alaska Science Center is responsible for research on trust lands and waters, including those of the NPS. ACS has been involved with the SWAN biological inventories and monitoring design since 2001.
- The Western Regional Climate Center (WRCC) is administered by NOAA and serves as a focal point for coordination of applied climate activities in Alaska. SWAN will partner with WRCC to archive and deliver climate data via the World Wide Web and to develop analysis tools for climate data.
- The Alaska Volcano Observatory (AVO) is a joint program of USGS, the Geophysical Institute of the University of Alaska Fairbanks, and the State of Alaska Division of Geological and Geophysical Surveys. Its volcano monitoring program consists of networks of continuously recording seismometers installed at active volcanoes in SWAN.
- The West Coast/Alaska Tsunami Warning Center (WCATWC) in Palmer, Alaska, operates recording stations throughout southwestern Alaska and provides data on earthquake events.
- The Alaska SeaLife Center (ASC) is a nonprofit marine science facility dedicated to understanding and maintaining the integrity of the marine ecosystem of Alaska through research, rehabilitation, and public education.

## 8.5 Program Reviews

Periodic reviews of the Network's monitoring program and protocols are critical to ensure that objectives of the Vital Signs Monitoring Program are being met, or if course corrections are needed, that they are accomplished quickly to save unnecessary expenditures of resources and time. The Annual Administrative Report and Work Plan will provide the TC and BOD with an opportunity to review ongoing and planned projects. A second level of review will be afforded by a biennial SWAN Science Symposium/Investigators Report to the TC. This will be a 2-day meeting at which all Network staff, park staff, and cooperators conducting monitoring or research will give technical presentations and discuss the results of their work. During the second day of the meeting the TC will discuss the presentations and evaluate progress and results. Finally, the program will be reviewed formally, at least once every 5 yr (Table 8-5). A formal report will be generated from this periodic review, with specific suggestions for improvements to the monitoring program.



**Table 8-4** Anticipated partnerships in the monitoring of SWAN vital signs. (See text for abbreviation spell-outs.)

Project	Vital Sign	Monitoring Conducted Solely by SWAN	Monitoring Conducted by SWAN and Partner(s)	Monitoring Conducted Only by Partner(s) Cooperator(s)
Weather and Climate	Weather and Climate		SWAN WRCC-DRI	
Landscape Dynamics and Terrestrial Vegetation	Glacier Extent	SWAN		
	Landscape Processes	SWAN		
	Land Cover and Land Use	SWAN		
	Vegetation Composition and Structure		SWAN USFS	
	Sensitive Vegetation Communities	SWAN		
	Volcanic & Earthquake Activity			AVO WCATWC
	Insect Outbreaks			ADNR
Marine Nearshore	Geomorphic Coastal Change		SWAN GEM KBERR CIRCAC USGS-BRD	
	Kelp & Eelgrass			
	Intertidal Invertebrates			
	Seabirds			
	Black Oystercatcher			
	Sea Otter			
	Water Chemistry			
	Harbor Seal			NMFS ASC
Lakes, Rivers and Fish	Surface Hydrology	SWAN		
	Water Chemistry	SWAN		
	Resident Lake Fish	SWAN		
	Salmon		SWAN ADF&G	
Terrestrial Animals	Brown Bear		SWAN ADF&G	
	Wolf & Wolverine		SWAN ADF&G	
	Moose		SWAN ADF&G	
	Caribou			ADF&G
	River Otter (coastal)		SWAN GEM	
	Bald Eagle		SWAN USFWS	
Human Activities	Resource Harvest			USFWS
	Visitor Use		SWAN	
	Invasive/Exotic Species		SWAN ARO	
	Air Quality			USFWS

**Table 8-5** *Process and schedule for reviews of the SWAN monitoring program.*

REVIEW	TIMING	PARTICIPANTS	INTENT OF REVIEW
Annual Administrative Report and Work Plan	Annual	Technical Committee Board of Directors Regional Office Washington Office	Provide yearly accountability for program. Report on accomplishments and explain goals and projects for next fiscal year.
Science Symposium/Investigators Report to the Technical Committee	Biannual	Network Staff Technical Committee Board of Directors Regional Office	Provide technical details on results and status of all monitoring projects. Provides a forum for all project leaders, cooperators, partners, and park staff working in SWAN to discuss progress and new potential directions.
5-year Program Review	Once Every 5 Years (First Review, 2011)	Network Staff Technical Committee Board of Directors Washington Office Outside Invited Experts	Provide synthesis of data collected by program, evaluate the utility to park management, evaluate administration and operations of program, make recommendations for improvement of all aspects of program.